

What is claimed is:

1. ~~A plasma display apparatus, which represents the luminance of one frame in accordance with a combination of sub-frames having predetermined luminance levels, comprises:~~

5 a data converter for converting input video data into output data in which the ON/OFF states of the sub-frames are specified;

wherein the sub-frames include a smaller luminance sub-frame having a luminance level which is lower than the  
10 minimum gray scale level of luminance which can be represented by the number of bits in the input video data.

2. A plasma display apparatus according to claim 1, wherein said data converter has a plurality of conversion  
15 characteristics, and a desired conversion characteristic is selected in accordance with a mode set signal for selecting said plurality of conversion characteristics.

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20 3. A plasma display apparatus according to claim 1, wherein said input video data are supplied in accordance with a plurality of primary colors, and said conversion characteristics of said data converter are selectively determined for each of said primary colors.

25 4. A plasma display apparatus according to claim 1, wherein, said data converter has a conversion characteristics in which an increase rate of the luminance of said output data

in a first gray scale area for said input video data, differs from an increase rate of said luminance of said output data in a second gray scale area, whose luminance is higher than said first gray scale area.

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5. A data converter for a plasma display apparatus which represents the luminance of one frame in accordance with a combination of sub-frames having predetermined luminance levels, wherein video input data are converted into output data in which the ON/OFF states of the plurality of sub-frames are specified, and wherein the sub-frames include a smaller luminance sub-frame which has a luminance level lower than the minimum gray scale level of luminance which can be represented by the number of bits in the input video data.

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6. A data converter according to claim 5, wherein a conversion characteristic of the data converter is that an increase rate of the luminance of the output data in a first gray scale area for the video input data is lower (or higher) than an increase rate of the luminance of the output data in a second gray scale area, whose is higher luminance than that in the first gray scale area.

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7. Driving method for a plasma display apparatus which represents the luminance of one frame in accordance with a combination of sub-frames having predetermined luminance levels, comprising:

~~a step of converting video input data into output data in~~  
which the ON/OFF states of the plurality of sub-frames are  
specified;

wherein the sub-frames include a smaller luminance  
5 sub-frame which has a luminance level lower than the minimum  
gray scale level of luminance which can be represented by the  
number of bits in the input video data.

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